Department of
Mechanical and Industrial Engineering

Final Report

Optimization and productivity improvement
of replenishing operation
for
DSV Solutions

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Team 2

Harshil Thakkar (1007619739)
Tushar Verma (1007555316)
Alan Chacko (1007532608)
Darshil Sanchala (1008642051)

University of Toronto

Executive Summary

DSV Solutions Inc. is a Danish transport and logistics company with a growing contract logistics business. DSV has its headquarters in Denmark and offices around the globe in more than 80 countries.

This specific project focuses on one of their 13 facilities in Canada, the Brampton facility, which is also a dedicated warehouse for one of the leading multinational retailers of personal care and beauty products. The six primary functions in the facility are Receiving, Put-away, Replenishing, Picking, Packing and Outbound, where replenishing is the prime focus for this project. Replenishment is a support function that is only a cost and does not add value to the client. Incurring unnecessary expenses decreases profitability and competitiveness in the market. The client requires to optimize the replenishing process and increase its productivity without increasing the labour costs.

This project focuses on optimizing the replenishing process without increasing the labour cost for one of their 13 facilities in Canada, the Brampton facility, a dedicated warehouse for one of the leading multinational personal care and beauty products retailers.

The functional areas considered in this project's scope are the Current State baseline, Outbound Volume analysis, Comparison of outbound to replenishment, and Planning tool. However, WMS Changes and Discipline and daily management of staff are excluded.

DMAIC methodology is utilized to approach the problem statement; However, Improve and Control are beyond this project's scope.

Define: Critically identified the scope of the problem, determined the project's objective and benefits, and eventually set up the project charter.
Measure: Determined the current baseline by measuring the existing system through time study analysis, followed by establishing reliable and valid metrics for productivity measurement
Analyze: Used system analysis to identify techniques of gap elimination between current performance and desired target levels. Techniques in RCFA (root cause failure analysis) such as the Fishbone method and FMEA (Failure Mode Effect Analysis) are used.

Data gathered from the time study analysis is cleaned and further analyzed. The findings from the above research highlighted six plausible causes in the replenishment operation that decrease the productivity of the process. These causes include wait time, idle time, ghost locations, travel time, detrashing, and cleanup time. In addition, based on the key findings, recommendations to improve productivity and its effects were provided along with its estimated implementation period.